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(Figure 1). In addition, the testing protocol involved calvaria implantation of collagen sponges (to assess membranous bone formation) containing either 0 [mg]  $\mu$ g or 35 [mg]  $\mu$ g BP. Samples of variable composition and concentration can be produced.

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1 (Currently Amended) A bone growth composition, comprising:

(a) a substrate comprising a material chosen from the group consisting of collagen, fibrin, alginate and mixtures thereof;

(b) a bone growth protein;

(c) a source of calcium; and,

(d) a source of phosphate,

wherein said composition comprises an acidic pH capable of enhancing bone growth protein induced bone formation, when said composition is implanted in a mammal at a site in need of bone growth, ~~is capable of buffering the microenvironment surrounding said site to an acid pH whereby bone growth is enhanced at said site.~~

2. (Currently amended) A bone growth composition, comprising:

(a) a substrate comprising a material chosen from the group consisting of collagen, fibrin, alginate and mixtures thereof;

(b) a bone growth protein; and,

(c) a salt composition consisting essentially of ~~an acidic calcium phosphate salt~~ calcium hydrogen phosphate dihydrate,

wherein the bone growth composition comprises an acidic pH capable of enhancing bone growth protein induced bone formation, when said composition is implanted in a mammal at a site in need of bone growth, ~~is capable of buffering the microenvironment surrounding said site to an acid pH whereby bone growth is enhanced at said site.~~

3. (Currently amended) A bone growth composition for implantation into a mammal, comprising:

(a) a substrate comprising a material chosen from the group consisting of collagen, fibrin, alginate and mixtures thereof;

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(b) a bone growth protein; and,

(c) a salt composition consisting essentially of one or more acidic calcium phosphate salts,

wherein the bone growth composition comprises a pH between about 4 and about 7 capable of enhancing bone growth protein induced bone formation, when said composition is implanted into a mammal, buffers the immediate physiological environment around the composition to a pH between about 4 and about 7.

4 (Currently amended) A bone growth composition as claimed in Claim 1, wherein the source of calcium is an at least one acidic calcium phosphate salt.

5. (Currently amended) A bone growth composition as claimed in Claim 4, wherein the source of calcium is at least one acidic calcium phosphate salt selected from the group consisting of calcium monophosphate, calcium hydrogen phosphate, and calcium pyrophosphate.

6. (Original) A bone growth composition as claimed in Claim 1, wherein the source of phosphate is a sodium phosphate salt.

7. (Currently amended) A bone growth composition as claimed in Claim 1, wherein the substrate is selected from the group consisting of comprises collagen, fibrin, alginate and mixtures thereof.

8. (Original) A bone growth composition as claimed in Claim 1, wherein the bone growth protein is selected from the group consisting of purified bone growth factors, recombinantly produced bone growth factors and mixtures thereof.

9. (Withdrawn) A bone growth composition as claimed in Claim 8 wherein the bone growth protein comprises a transforming growth factor  $\beta$  (TFG- $\beta$ ) superfamily protein.

10. (Original) A bone growth composition as claimed in Claim 8 wherein the bone growth protein comprises Bone Protein.

11-23. (Canceled)

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24. (Currently amended) A bone growth composition, comprising:

- (a) a collagen substrate;
- (b) a bone growth protein;
- (c) a source of calcium; and,
- (d) a source of phosphate,

wherein said composition, ~~when implanted at a site in need of bone growth initially having a surrounding microenvironment at physiological pH, is capable of lowering the pH of said microenvironment to less than 7~~ comprises a pH in the range of 4.5 - 6.5, and is capable of enhancing whereby bone growth when implanted at a site in need of bone growth is enhanced at said site.

25. (Currently amended) The bone growth composition of claim 24~~1~~, wherein said composition is capable of lowering the pH of said microenvironment to comprises a pH between about 4 and about 7.

26. (Currently amended) The bone growth composition of claim 25, wherein said composition is capable of lowering the pH of said microenvironment to comprises a pH between about 5 and about 6.8.

27. (Currently amended) The bone growth composition of claim ~~25~~26, wherein said composition is capable of lowering the pH of said microenvironment to comprises a pH between about 5.5 and about 6.7.

28. (Currently amended) A bone growth composition, comprising:

- (a) a substrate comprising a material selected from the group consisting of collagen, fibrin, alginate and mixtures thereof;
- (b) a bone growth protein selected from the group consisting of at least one TGF- $\beta$  superfamily proteins protein; and

(c) an acidic calcium phosphate salt composition selected from the group consisting of calcium monophosphate, calcium hydrogen phosphate, calcium pyrophosphate, and mixtures thereof,  
wherein, when the bone growth composition comprises a pH between about 5 and about 6.8 capable of enhancing bone growth protein induced bone formation when the composition is

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~~implanted at a site in need of bone growth having a surrounding microenvironment initially at physiological pH, said composition is capable of lowering said pH to between about 5 and about 6.8 whereby bone growth is enhanced at said site.~~

29. (Currently amended) The bone growth composition of claim 28, wherein the acidic calcium phosphate salt composition consists essentially of calcium hydrogen phosphate, ~~and wherein said composition is capable of lowering the initial physiological pH of the microenvironment of said site to between about 5 and about 6.8 after implantation of said composition at said site.~~

30 - 31. (Canceled)

32. (New) The bone growth composition of claim 1 wherein said calcium source is about 1 - 85% by weight of the composition.

33. (New) The bone growth composition of claim 1 wherein said phosphate source is about 1 - 75% by weight of the composition.

34. (New) The bone growth composition of claim 1 wherein said collagen is selected from the group consisting of Type I collagen, Type II collagen, Type III collagen, and Type IV collagen, and mixtures thereof.

35. (New) The bone growth composition of claim 34 wherein said collagen comprises Type I bovine tendon atelopeptidecollagen.

36. (New) The bone growth composition of claim 34 comprising about 0.5 - 20% by weight collagen.

37. (New) The bone growth composition of claim 36 comprising about 3 - 5% by weight collagen.

38. (New) The bone growth composition of claim 24 wherein said calcium source is about 1 - 85% by weight of the composition.

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39. (New) The bone growth composition of claim 24 wherein said phosphate source is about 1 - 75% by weight of the composition.

40. (New) The bone growth composition of claim 24 wherein said collagen is selected from the group consisting of Type I collagen, Type II collagen, Type III collagen, and Type IV collagen, and mixtures thereof.

41. (New) The bone growth composition of claim 40 wherein said collagen comprises Type I bovine tendon atelopeptidecollagen.

42. (New) The bone growth composition of claim 40 comprising about 0.5 - 20% by weight collagen.

43. (New) The bone growth composition of claim 42 comprising about 3 - 5% by weight collagen.

44. (New) The composition of claim 1 comprising about 4% collagen by weight and about 4% calcium hydrogen diphosphate by weight.

45. (New) The composition of claim 2 wherein the substrate comprises collagen.

46. (New) The composition of claim 3 wherein the substrate comprises collagen.

47. (New) The composition of claim 1 wherein said acidic pH comprises a pH in the range of 4.5 to 6.5.

48. (New) The composition of claim 1, wherein said enhanced bone formation comprises an enhanced histologic score.